



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,186	01/20/2004	Tomikazu Sakaguchi	0073/014001	7707

22893 7590 04/18/2005

SMITH PATENT OFFICE
1901 PENNSYLVANIA AVENUE N W
SUITE 200
WASHINGTON, DC 20006

EXAMINER

KO, TONY

ART UNIT	PAPER NUMBER
----------	--------------

2878

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/759,186

Applicant(s)

SAKAGUCHI, TOMIKAZU

Examiner

Tony Ko

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/20/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by

Sakaguchi (U.S. Patent 5,003,169).

Regarding claims 1-19, Sakaguchi discloses (Figs. 1, 19, 32) a multi-optical axis photoelectric sensor comprising: a main element (11) holder including a plurality of light guide housings (covers for 11) each having an optical element (9) therein, said main element holder having a first engagement portion (122); an additional element (12) holder including a plurality of light guide housings each having an optical element therein, said additional element holder having a second engagement portion (119) capable of mechanically engaging and disengaging said first engagement portion of said main element holder; wherein said main element holder and said additional element holder are disposed so that said plurality of light guide housings of said additional element holder and said plurality of light guide housings of said main element holder are disposed in a line when said additional element holder is engaged with said main element holder by said first and second engagement portions.

Sakaguchi also discloses the plurality of light guide housings in said main element holder and said plurality of light guide housings in said additional element holder are

Art Unit: 2878

equally spaced. Sakaguchi also discloses the second engagement portion of said additional element holder and said first engagement portion of said main element holder are engaged by relative movement between said first engagement portion and said second engagement portion. Sakaguchi also discloses the relative movement includes movement of at least one of said main element holder and said additional element holder parallel to a longitudinal axis of at least one of said main element holder and said additional element holder. Sakaguchi also discloses (Fig. 28) the relative movement includes movement of at least one of said main element holder and said additional element holder perpendicular to a longitudinal axis of at least one of said main element holder and said additional element holder. Sakaguchi also inherently discloses each of said optical elements has a coupling terminal extending backwardly from a rear surface (i.e. leads connects to the circuit board) of said optical element, and said multi-optical axis photoelectric sensor further comprises: a main circuit (10) board disposed at a rear surface of said main element holder; and an additional circuit board (8) disposed at a rear surface of said additional element holder; wherein said main circuit board and said additional circuit board are formed with holes (all circuit boards inherently contain holes) therein and said coupling terminal of one of said optical elements is respectively disposed in one of the holes and respectively contacts at least one of said main circuit board and said additional circuit board. Sakaguchi also discloses the main circuit board and said additional circuit board are electrically coupled to each other through a connector (118). Sakaguchi also discloses the main element holder and said additional element holder, it inherently includes a coupling

Art Unit: 2878

terminal (leads of the LED) extending outwardly from a side surface of said optical element, and said multi-optical axis photoelectric sensor further comprises: a first circuit board disposed parallel to the light guide housings arranged in said main element holder; wherein said first circuit board and said additional circuit board include notches (holes on the circuit board where LED and circuit board connects) therein and said coupling terminal is respectively disposed in one of the notches and respectively contacts at least one of said first circuit board and said additional circuit board.

Sakaguchi also discloses a control board (65) including a control circuit for said multi-optical axis photoelectric sensor, said control board being disposed along a rear surface of said main element holder so that said control board is orthogonal to said first circuit board. Sakaguchi also discloses the first circuit board and said additional circuit board are electrically coupled to each other through a connector (70). Sakaguchi also discloses the first circuit board and said control board are electrically coupled to each other through a connector (the wire connecting 65 and the board). Sakaguchi also discloses the optical element is a light emitting element (7). Sakaguchi also discloses the optical element is a light receiving element (9). Sakaguchi also discloses (Fig. 21) a multi-optical axis photoelectric sensor comprising: a first main element holder including a plurality of light guide housings each having an optical projecting element therein, said first main element holder having a first engagement portion; a first additional element holder including a plurality of light guide housings each having an optical projecting element therein, said first additional element holder having a second engagement portion capable of mechanically engaging and disengaging said first

engagement portion of said first main element holder; wherein said first main element holder and said first additional element holder are disposed so that said plurality of light guide housings of said first additional element holder and said plurality of light guide housings of said first main element holder are disposed in a first line when said first additional element holder is engaged with said first main element holder by said first and second engagement portions, said multi-optical axis photoelectric sensor further comprises: a second main element holder including a plurality of light guide housings each having an optical receiving element therein, said second main element holder having a third engagement portion; a second additional element holder including a plurality of light guide housings each having an optical receiving element therein, said second additional element holder having a fourth engagement portion capable of mechanically engaging and disengaging said third engagement portion of said second main element holder; and wherein said second main element holder and said second additional element holder are disposed so that said plurality of light guide housings of said second additional element holder and said plurality of light guide housings of said second main element holder are disposed in a second line when said second additional element holder is engaged with said second main element holder by said third and fourth engagement portions.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2878

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 14, 15-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Missimy (U.S. Patent 3,805,061) in view of Sakaguchi.

5. Regarding claims 1-4, 14-17 and 19, De Missimy discloses (Fig. 1) a multi-optical axis photoelectric sensor comprising: a main element holder (6B) including a plurality of light guide housings each having an optical element therein, said main element holder having a first engagement portion (where 6B and 6A connects); an additional element (6A) holder including a plurality of light guide housings each having an optical element therein, said additional element holder having a second engagement portion cable of engaging and disengaging said first engagement portion of said main element holder; wherein main element holder and said additional element holder are disposed so that said plurality of light guide housings of said additional element holder and said plurality of light guide housings of said main element holder are disposed in a line when said additional element holder is engaged with said main element holder by said first and second engagement portions. De Missimy also discloses the plurality of light guide housings in said main element holder and said plurality of light guide housings in said additional element holder are equally spaced. De Missimy also discloses the second engagement portion of said additional element holder and said first engagement portion of said main element holder are engaged by relative movement, which is parallel to a longitudinal axis of the main element, between said first engagement portion and said second engagement portion. De Missimy also discloses third and fourth engagement elements (the engagement elements on 6A, 6B and 6C). De Missimy does not disclose

mechanically engaging the first element portion of said main element holder. Sakaguchi discloses to mechanically engaging the first element portion of said main element holder. It would have been obvious to a person of ordinary skill in the art at the time of the invention to mechanically engaging the first element portion of said main element holder to conveniently put housing together.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Ko whose telephone number is 571-272-1926. The examiner can normally be reached on Monday-Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TKO


DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800